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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/734,542

12/12/2003

Jae Gark Choi

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EXAMINER

VO, TUNG T

ART UNIT

PAPER NUMBER

2621

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/734,542	Applicant(s) CHOI ET AL.	
	Examiner Tung Vo	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6 and 8 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/12/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/10/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US 6,400,831) in view of Rodriguez (US 6,329,379) as set forth in the previous Office Action dated 07/28/2008.

3. Claims 1-2, 4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hampapur et al. (US 6,738,100) as set forth in the previous Office Action dated 07/28/2008.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (US 6,400,831) in view of Rodriguez (US 6,329,379) as applied to claim 1, and further in view of Okada (US 6,456,328).

Re claim 8, the combination of Lee and Rodriguez does not particularly teach wherein automatic segmenting comprises: estimating object regions to which the objects defined and segmented in the first frame are moved in the second frame; compensating and correcting for error and noise in the object regions; using spatial information based on the brightness information of the first frame, the color information of the first frame, a brightness information

of the second frame and a color information of the second frame to segment pixels of uncertain areas into a nearest video object of the second frame using a median filter.

However, Okada teaches estimating object regions to which the objects defined and segmented in the first frame are moved in the second frame (e.g. 12 of fig. 1, e.g. 50 of fig. 2); compensating and correcting for error and noise in the object regions (90 and 95 of fig. 2); using spatial information based on the brightness information of the first frame, the color information of the first frame (e.g. 60 of fig.3), a brightness information of the second frame and a color information of the second frame (e.g. 60 of fig. 2) to segment pixels of uncertain areas into a nearest video object of the second frame using a median filter (12 of fig. 1, 52 of fig. 4)

Taking the teachings of Lee, Rodriguez, and Okada as a whole, it would have been obvious to one of ordinary skill in the art to modify the teachings of Okada into the combined system of Lee and Rodriguez thus improves the accuracy of the range of tones to be sampled.

Response to Arguments

5. Applicant's arguments filed 11/24/2008 have been fully considered but they are not persuasive.

The applicant argues that neither Lee, Rodriguez, nor the combination teaches or enables Applicant's claim 1 limitations of:

a) defining and primarily segmenting objects existing in a first frame of a video sequence semi-manually based on spatial information such that, if the user designates manually a rough boundary line of the object within the frame, then the object within the frame is automatically

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segmented based on the designation-related information, a brightness information of the first frame and a color information of the first frame; and

b) automatically segmenting the objects defined and segmented the first frame in a second frame within a moving video sequence by performing object-tracking based on movement of the objects defined and segmented in the first frame.

The examiner respectfully disagrees with the applicant. It is submitted that Lee teaches a video object segmentation method applicable to a video system, comprising the steps of: a) defining and primarily segmenting objects existing in a frame of a video sequence semi-manually based on spatial information such that (100 of fig. 1; wherein figure 11 shows defining and segmenting objects in spatial information, a current frame and previous frame), if the user designates manually a rough boundary line of the object within the frame (110 of fig. 1, Define Approximate Boundary, col. 6, lines 31-38), then the object within the frame is automatically segmented based on the designation-related information (e.g. 112, 102-106 of fig. 1, col. 6, lines 10-13), a color information of the first image (col. 6, lines 26-30);

b) automatically segmenting the objects defined and segmented the first frame (F0, 100 of fig. 2) in a second frame (F1 of fig. 2) within a moving video sequence (video is moving video sequence, col. 3, lines 40-50) by performing object-tracking based on movement of the objects defined and segmented in the first frame (108 of fig. 2; col. 4, lines 6-8, note objects are identified according to a semantic basis and their movement tracked throughout video frames, F0, F1, and F2 of fig. 2).

Rodriguez teaches a brightness information of the segments (col. 5, lines 58-67).

Lee further suggests several variations in the embodiments can be modified in arrangement and detail without departing from such principles (col. 15, lines 5-10), and Rodriguez suggests that various changes in form and details may be made (col. 9, lines 12-17). Therefore, one skill in the art would obviously use suggestions of Lee and Rodriguez to make obvious the claimed features.

The applicant further argues that the combination of Lee and Rodriguez does not teach the benefits as described in the remarks. It is acknowledged that the arguments are not directed to the claimed features, so they are not persuasive.

The applicant further argues that there is no teachings in Hampapur of user segment selection input, use, or correspondence between a user selected segment and the automatic processing.

The examiner respectfully disagrees with the applicant. It is submitted that Hampapur teaches a) defining and primarily segmenting objects existing in a first frame of a video sequence semi-manually (fig. 2, Note see USER QUERY INTERACTION of fig. 1, See also figure 2, wherein objects are segmented in image 1, BROWN BUILDING, BLUE SKY, and GREEN LAWNS). Hampapur further teaches a system for automatically processing a video sequence to extract metadata that provides an adequate visual representation of the video (col. 1, lines 51-58) and frames from a user-selected video segment or sequence are processed to identify the keyframes (col. 3, lines 8-26); this disclosure would fairly suggest to one of ordinary skill in the art that system is semi-manually. In view of the discussion above, the claimed features is unpatentable over Hampapur.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tung Vo/

Primary Examiner, Art Unit 2621